

# Airspace Simulation Through Indoor Operation of Subscale Flight Vehicles, Phase I

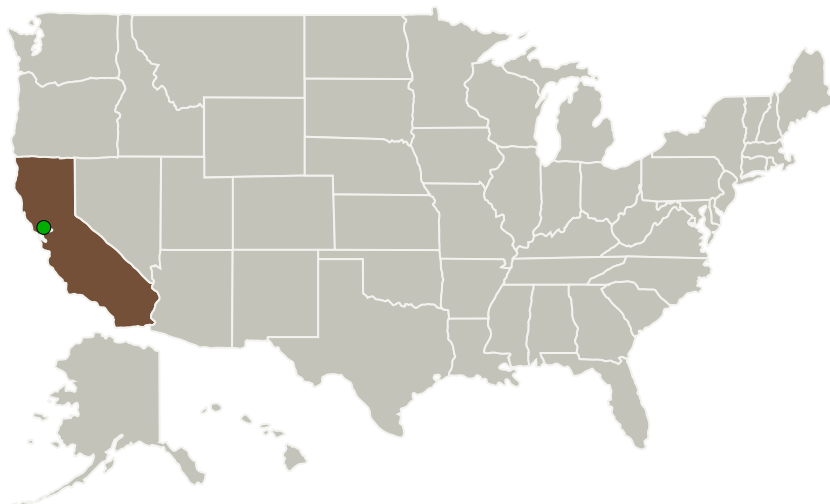
Completed Technology Project (2011 - 2011)



## Project Introduction

An indoor environment for simulating airspace operations will be designed. Highly maneuverable subscale vehicles can be used to simulate the dynamics of full-scale vehicles by applying software limiters on their rates. Multiple vehicles can operate autonomously or can be coordinated through centralized control. The effects of weather on system throughput can be assessed by monitoring movements in the controlled environment, Faults related to communication, detection and vehicle performance can be inserted into the system, to assess the robustness of proposed airspace concepts. We are particularly interested in the impact of UAVs in the NAS. Automated separation assurance schemes are essential for UAV integration. The indoor environment is ideally suited to prove out both airborne and ground-based approaches to separation assurance. Beyond this particular motivation for developing this test facility, evaluation of novel algorithms for trajectory design and innovative communication concepts can be assessed safely and cost-effectively in this environment. The key innovation is the environment in which vehicles and airspace technologies can be assessed. We are not proposing innovation in the technologies themselves. Furthermore, we think that the key elements of the environment are already available, but they have not been assembled into a system that supports airspace simulation. The innovation is primarily system integration, with some customization of the various elements so that interaction between elements is representative of full-scale airspace operations.

## Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Neerim Corporation	Lead Organization	Industry	Mountain View, California
● Ames Research Center(ARC)	Supporting Organization	NASA Center	Moffett Field, California

## Primary U.S. Work Locations

California

## Project Transitions

**February 2011:** Project Start

**September 2011:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137987>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Organization:

Neerim Corporation

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

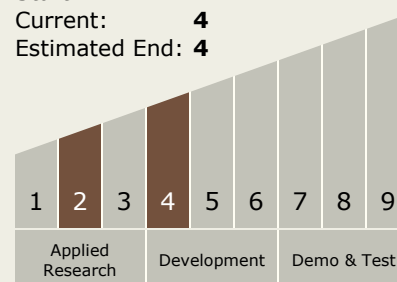
Peter Gage

## Technology Maturity (TRL)

Start: 2

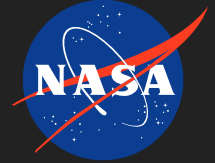
Current: 4

Estimated End: 4



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## Technology Areas

### Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - └ TX16.4 Architectures and Infrastructure

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System